

WHAT IS CLAIMED IS:

1. A method of protecting a cell from a toxin comprising:
 - (a) providing an expression cassette comprising a promoter active in said host cell and a gene encoding PON1 under the control of said promoter; and
 - (b) transferring said expression cassette into said cell under conditions permitting expression of PON1.
2. The method of claim 1, wherein PON1 is PON1 type Q.
3. The method of claim 1, wherein PON1 is PON1 type R.
4. The method of claim 1, wherein said cell expresses PON1 type Q.
5. The method of claim 1, wherein said cell expresses PON1 type R.
6. The method of claim 1, wherein said toxin is an organophosphate.
7. The method of claim 6, wherein said organophosphate is an organophosphate pesticide.
8. The method of claim 1, wherein said toxin is a nerve agent.
9. The method of claim 1, wherein said expression cassette further comprises a polyadenylation signal.
10. The method of claim 1, wherein said expression cassette is further comprised within a vector.
11. The method of claim 10, wherein said vector is a viral vector.
12. The method of claim 11, wherein said viral vector is a herpesviral vector, a retroviral vector, an adenoviral vector, an adeno-associated viral vector, a polyoma viral vector, and a vaccinia viral vector.
13. The method of claim 11, wherein said viral vector is an adenoviral vector.

14. The method of claim 1, wherein said promoter is a constitutive promoter.
15. The method of claim 1, wherein said promoter is an inducible promoter.
16. The method of claim 1, wherein said promoter is a tissue specific promoter.
17. The method of claim 4, wherein said expression cassette increases PON1 type Q expression by about 10-fold.
18. The method of claim 5, wherein said expression cassette increases PON1 type R expression by about 10-fold.
19. The method of claim 1, wherein said cell is a liver cell.
20. The method of claim 1, wherein said cell expresses low levels of PON1 type Q or R as compared to the general population.
21. A method of protecting a subject from a toxin comprising:
 - (a) providing an expression cassette comprising
 - (i) a promoter active in host cells of said subject,
 - (ii) a gene encoding PON1 under the control of said promoter; and
 - (b) administering to said subject said expression cassette under conditions permitting expression of PON1.
22. The method of claim 21, wherein said toxin is an organophosphate.
23. The method of claim 22, wherein said organophosphate is an organophosphate pesticide.
24. The method of claim 21, wherein said toxin is a nerve agent.
25. The method of claim 21, wherein administering comprises intravenously or intraarterially.

26. A method for protecting a subject from chemical warfare agents comprising:
 - (a) determining a chemical warfare threat;
 - (b) providing to said subject an expression cassette comprising
 - (i) a promoter active in host cells of said subject,
 - (ii) and a gene encoding PON1 under the control of said promoter,in a form suitable for self administration; and
 - (c) providing to said subject information of said chemical warfare threat and instructions on the self administration of said expression cassette.
27. The method of claim 26, wherein said form suitable for self administration is a pharmaceutical preparation of a virus particle comprising said expression cassette.
28. The method of claim 26, wherein said PON1 is PON1 type Q.
29. A method of protecting a subject from chemical warfare agents comprising administering to said subject an expression cassette comprising:
 - (a) a promoter active in cells of said subject; and
 - (b) a gene encoding PON1 under the control of said promoter under conditions permitting expression of PON1.
30. The method of claim 29, wherein said form suitable for self administration is a pharmaceutical preparation of a infectious virus comprising said expression cassette.
31. The method of claim 29, wherein said PON1 is PON1 type Q.
32. A method of treating a subject to protect, correct or retard the progress of a neurodegenerative disease comprising administering to said subject an expression cassette comprising:

- (a) a promoter active in cells of said subject; and
- (b) a gene encoding PON1 under the control of said promoter under conditions permitting expression of PON1.

33. The method of claim 32, wherein said neurodegenerative disease is Parkinson's Disease or amyotrophic lateral sclerosis.

34. A method of treating or protecting a subject from atherosclerosis comprising administering to said subject an expression cassette comprising:

- (a) a promoter active in cells of said subject; and
- (b) a gene encoding PON1 under the control of said promoter under conditions permitting expression of PON1.

35. A method of treating or protecting a subject from Gulf War Syndrome comprising administering to said subject an expression cassette comprising:

- (a) a promoter active in cells of said subject; and
- (b) a gene encoding PON1 under the control of said promoter under conditions permitting expression of PON1.

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